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BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – M.Pharm(PC)-2024
Course Name – Advanced Spectral Analysis
Course Code - MPC201T
(Semester II)

Full Marks : 75 **Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-B

(Short Answer Type Questions) 5 x 5=25

Answer all the questions

1. Explain the importance of NMR solvent selection in the analysis of organic compounds and its effect on chemical shifts. (5)
2. Explain how colorimetric detection is applied in ELISA, and what are the alternatives to this detection method. (5)
3. Explain with examples about alkyl substituents or ring residue in Woodward-Fieser rule. (5)
4. Discuss the applications of mass spectrometry in pharmaceutical analysis. (5)
5. Summarize the instrumentation of Raman spectroscopy. (5)

OR

Decide the principle of Raman spectroscopy. (5)

Group-C

(Long Answer Type Questions) 10 x 5=50

Answer all the questions

6. Describe Power-Compensated DSC, with a labelled diagram. (10)
7. Explain the role of chemical shift, coupling constants (J values), and integration assist in the interpretation of ^{1}H NMR spectra. (10)
8. Discuss the working principle of a COSY (Correlation Spectroscopy) spectrum in analyzing the structure of organic compounds. (10)
9. Explain the principle, instrumentation and application of DTA. (10)

OR

Explain the principle, instrumentation and application of TGA. (10)

10. Discriminate in detail about advantages and challenges of Raman spectroscopy. (10)

OR

Compare Power-Compensated DSC and Heat-Flux DSC. (10)

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